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10/730,758

12/08/2003

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AZMT-002 P1

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/730,758
Filing Date: December 08, 2003
Appellant(s): LEE, DAVID

Alan Taboada
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 6/20/06 appealing from the Office action
mailed 10/13/05.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

| | | |
|-----------|-----------|---------|
| 6,268,236 | Miyawaki | 7-2001 |
| 4,897,508 | Mahulikar | 01-1990 |
| 5,776,799 | Song | 7-1998 |

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-7 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyawaki (US 6,268,236, previously cited) in view of Mahulikar et al. (US 4,897,508, previously cited, hereinafter, Mahulikar.)

In regard to claim 1, in figs. 2A-2C, Miyawaki discloses a method of packaging at least one component, comprising:

providing a lid 2;

molding sidewalls 1B, for example, onto a substrate to form a plurality of cavities

4 surrounding a component-mounting surface;

mounting a component 7 on the component-mounting surface in each cavity;

applying a curable adhesive 3 to a top surface of the sidewalls;

placing the lid upon the top surface of the sidewalls;

curing said adhesive; and

separating the component package assembly into a plurality of individual component packages.

Miyawaki, however, does not disclose that the lid having vent holes.

Mahulikar, in fig. 4, discloses an analogous package including a substrate 12, cavity 30, and a component 22 in the cavity, adhesive layer to attach a lid 14 to the substrate. Fig. 4 further discloses a vent hole 44 and seals the vent, or aperture, in the lid for reaction by-products generated during the cure cycle (col. 7, lines 19-21.)

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to include an aperture in the lid in order to include reaction by-products generated during the cure cycle.

In regard to claim 2, the component 7 as disclosed by Miyawali is a semiconductor chip; all chips compose of electronic circuits, or IC.

In regard to claims 3 and 10, the component as disclosed by Miyawaki is a high-frequency semiconductor chip. It, therefore, includes radio frequency circuit (see also, col. 5, line 33).

In regard to claim 4, Mahulikar discloses the top cover and sidewalls are formed of polymers (col. 5, lines 48-49 and col. 6, lines 10-13.)

In regard to claim 5, the curing the adhesive to seal the package is performed thermally (col. 6, lines 25-26).

In regarding to claim 6, Miyawali further discloses wherein separating comprises sawing, for example, wire saw (col. 4, lines 63-67.)

In regard to claim 7, Miyawali further discloses wherein placing the lid upon the sidewalls comprises applying a substantially uniform pressure over each cavity. (col. 4, lines 34-35.)

In regard to claims 9 and 11, the package as disclosed by Miyawaki includes cavities. These cavities are formed in a normal atmosphere; therefore, they contain air.

3. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyawaki and Mahulikar as applied to claims 1-7 and 9-11 above, and further in view of Song et al. (US 5,776,799, previously cited, hereinafter, Song).

In regard to claim 8, the above combination discloses all of the claimed limitations, except the adhesive layer is formed by screen printing.

Song, in fig. 5, for example, discloses a semiconductor package including adhesive layer 142 is deposited by screen printing process in order to allow the adhesive to be applied to many lead attaching regions at one time (col. 5, lines 49-52.)

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use a widely used process such screen printing to form the adhesive layer in order to allow the adhesive to be applied to many lead attaching regions at one time.

(10) Response to Argument

The main issue of the argument is whether the cited references disclose a well known, or commonly used process such as molding. Appellant argues that the cited references fail to teach or suggest molding sidewalls onto a substrate to form a plurality of cavities surrounding a component-mounting surface. The main argument focuses on the primary reference, Miyawaki.

In summary, Miyawaki, in figures 2A-2C, for example, discloses a substrate 1A, cavities are formed on the substrate by another substrate 1B, which provides walls in order to form identical cavities 4 as claimed in claim 1, a lid 2 is then disposed on the cavities to complete the package, and the substrate is divided into individual packages.

In comparison, Miyawaki discloses an almost identical method of forming the individual packages. Appellant insists that Miyawaki does not disclose the molding process as a conventional process. Miyawaki acknowledges that the hollow, or cavity, can achieve the same sealing and separation characteristics as those attained by "transfer molding" (an actual process), and can yield the same productivity as those yield by a molding process (column 1, lines 51-58.) Thus, it renders the obviousness of the step of creating cavities by molding process. It should be further noted that the "molding" itself is vague and broad limitation since it does not describe an actual process, or what type of molding. There are several molding features such as transfer molding, injection molding, etc. In several instances, Miyawaki teaches that molding is commonly used process in semiconductor packaging to ensuring the same productivity and cost effective. Therefore, Miyawaki indeed shows that to create the walls on the first

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substrate in order to form the cavities, the process can be carried out by either molding the walls or penetrating the holes in a substrate. Therefore, molding is an obvious and commonly used process. The claim does not require a specific molding step such as transfer molding or injection molding. Thus, "molding" step is considered as a broader process and indeed a conventional process as mentioned by Miyawaki as discussed above.

Appellant further alleges that the cited reference, Miyawaki, teaches away from using conventional mold packages (brief's page 6, second paragraph). The Office respectfully disagrees; however, Appellant's position again is not clear how this teaching would be a teaching away from using a different process. The fact that different process-recognized equivalent molding means, i.e. the transfer molding and/or inject molding, and penetrating are present in the mentioned reference does not teach away from utilizing the molding or penetrating the holes in the substrate to create the cavities. Miyawaki compares the methods of improving the whole package in terms of high-frequency characteristics. Therefore, the fact of mentioning another way of creating the cavities, Miyawaki does not teach away from a conventional method of molding. It only provides another advantage of sealing the individual packages after they are separated. Miyawaki in fact discusses that the method of the patent ensuring the same productivity and cost effective as the molding process. See also column 1 and lines 51-58.

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(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Nathan Ha



Conferees:

Ricky Mack



Wael Fahmy

